

NATIONAL AIR INTELLIGENCE CENTER



STRATEGIC DEFENSE INITIATIVE REVIEW FOR THE YEARS 1993 TO 1994

by

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STRATEGIC DEFENSE INITIATIVE REVIEW
FOR THE YEARS 1993 TO 1994

Li Zhongbo

In recent years the Soviet Union once again developed its strategic defense. Like present-day Russia, the Soviets had the world's only operative (or operating) antiballistic missile system and the only antisatellite system. They also had the world's largest air defense network, including more than 9000 launch pads for strategic space-oriented missiles, and deployed 10,000 air defense radars.

In October 1992, Izvestiya reported that Russian troops successfully experimented on their air defense system consisting of anti-ballistic missiles and anti-cruise missiles. In their experiments, the so-called Russian Patriot S-300V air defense missile and the matched Buk-MI, Tor, and Osa AKM air defense system were tested.

Izvestiya reported that the experiment involved single-fire multiple launch (multiple warheads in a single launch) or simultaneous launch. Altogether, all the 34 missiles were destroyed by 64 interceptor missiles. As pointed out by the responsible person in the experiments, Kohr Leahy Takinoff [Chinese transliteration], during the Gulf War (the war against

Iraq waged by multinational forces led by the United States): "[Journal] translator's note)--For one missile launched by Iraq, frequently several Patriot missiles were launched by the Americans to cope with it. However, in our system, it takes only one missile to destroy a target."

As pointed out by deputy chief U.S. delegate Majif P'eng [transliteration], taking part in the Washington-based Arms Control Conference, the Russians are enthusiastically discussing an anti-missile agreement of some kind so that they can sell their SA-10 interceptor missiles on the world arms market, as specified by the would-be agreement. They are urgently expecting to be able to sell the SA-10 interceptor missiles. A prospective sales tour was made by the designers of the SA-10 interceptor missiles; they think that the sales potential of SA-10 interceptor missiles can be demonstrated in the near term.

However, in the official Soviet attitude, even before the disintegration of the Soviet Union they still requested the United States to suspend their SDI project (the Star Wars project). This demonstrates that the Russian policy is shifting.

In November 1991, as pointed out by Russian delegate Vitaly Silikov of the Russian Defense Committee, when he met with the press: "The Soviet Union requires an effective anti-missile system to protect its security. This is so even if there is no global conflict with the United States at the present time." As pointed out by Silikov, the Soviets pursued SDI research after the United States: "If the Americans decide to cooperate with us on this aspect, Soviet designers can introduce their opinions to the American designers."

As pointed out by Silikov, "In the past two years, the world has undergone great changes. More and more nations possess ballistic missiles and nuclear capabilities. The United States

pays great attention to the Soviet situation. They are worried that disintegration of the Soviet Union will lead to more independent republics possessing strategic nuclear weapons. Their nuclear weapons are aimed at the United States and its allies."

General Viktor Samorov, chairman of the Russian Federation Defense Committee, pointed out while attending a defense security conference in Washington: "It is practical to establish a joint anti-missile system." He pointed out that 15 to 20 nations wish to possess ballistic missiles in the next decade. "Of these nations, half of them will possess ballistic missiles with ranges up to 5000 nautical miles. In my view, this is a serious source of threats confronting us in the future. Therefore, it is entirely possible to concentrate our efforts for an anti-missile agreement. All of us are interested." Silikov added, in the first step the two sides should make joint efforts in early warning of missile launches. "I believe that we will find various cooperative forms. We are preparing to discuss this problem."

I. Antimissile Systems

The world's only antimissile system with combat capability is deployed around the Moscow area. This system was the earliest-built, in 1954, followed by continuous improvements. In a U.S. Defense Department report, the improved interceptor with nuclear warheads operating above the atmospheric layers is called Gorgon--an active homing air-to-air missile with radio control. Gorgon missiles have been deployed to replace Galosh interceptor missiles that had been deployed in the sixties. Samorov said that the antimissile system deployed around Moscow can protect approximately 15% of the Soviet homeland.

As evaluated by the United States Defense Department, Gorgon

is a high-altitude long-range interceptor that is launched from a launch silo. The older Galosh system was launched from ground level, with a much shorter range. As reported by the foreign press, the Russians deployed 64 interceptors with ranges upwards of 500km.

In 1989, a second layer of the Moscow-area defense system was added by the Soviets with the deployment of 36 nuclear-warhead-armed interceptors operating in the dense atmospheric layers. The missile model was the Gazelle. The additional deployment of the Gazelle interceptor missiles constituted two defense layers for the Soviets. In the first layer, the long-range improved Galosh interceptor missiles operated in the outer atmospheric layers. In the second layer, the shorter-range, but very fast-accelerating Gazelle interceptor missile can operate in the dense atmospheric layers. As reported by the U.S. Defense Department, experiments are being conducted in Sary Shagan. Within 2h, two fast-accelerating missiles can be launched from a single launch silo. We can see that in the Moscow-area missile defense, the launch silos have reload capability.

Additionally, the Pillbox radar deployed in the Pushkino suburb of Moscow began operating in 1990, capable of providing 360° area coverage. Notwithstanding the fact that the improved radars were used as the Moscow-area antimissile defense system with multiple defense layers, still in the view of the U.S. Defense Department, the Moscow-area defense system still has fatal weak points. In other words, the number of missiles that can be launched is limited, and simply relying on Pillbox radar restricts the effectiveness of the entire defense system. In the view of the Pentagon (U.S. Defense Department), in 1990 although the Moscow-area antimissile defense system can provide defense against a limited attack or accidental launch, yet this is a defense system that can be easily suppressed.

As the leading personnel in the Pentagon responsible for strategy and theater nuclear forces, deputy secretary Lawrence Woodruff reported to the Congress at a 1987 hearing that, whatever improvements have been made in the Moscow defense system by spending billions of U.S. dollars and a decade's time, however, we believe we are required to spend lesser amounts to penetrate the Moscow-area defense system by using Minuteman missiles fitted with highly effective jammers and decoys. In this system, early warning satellite systems are used to lock on the incoming missiles. In addition, the incoming missiles would also be locked on with over-the-horizon radar complexes deployed in four areas: Minsk, Nikolayev, Komsomolsk-on-Amur, and Nakhodka. Thereafter, these incoming missiles will be locked on by Henhouse radar complexes deployed in Sary Shagan, Olenogorsk on the Kola Peninsula, Skrunda, Nikolayev in the Caucasus region, Angarsk near Irkutsk, and the Kamchatka Peninsula. There is a total of 11 Henhouse radar complexes, which can verify the early-warning reports by the early-warning satellite or over-the-horizon early-warning radar, to determine the scale of the attack and provide target-tracking information for interceptor missiles.

In the late eighties, a phased-array network composed of nine phased-array radars began to be built for the system. These phased-array radar network operates almost around all of the Soviet Union. As reported by the U.S. Department of Defense, the new radar network will track more ballistic missiles with tracking precision much better than that of the Henhouse radar network. The new system is expected to begin operating in the mid-nineties. It was stated that the Pchera model radar used in the new system can operate at a frequency of 150MHz. This frequency is less than one-tenth the frequency used by the battlefield management radar in the modern antimissile system. Such radar is most suitable for long-range detection required for early warning. However, as compared to high-frequency radars, the precision of tracking data is poorer than that provided by

the ballistic missile defense, and such radars are easily blinded by nuclear blast effects.

Most of the Moscow-area antimissile defense projects are in the installation and test stages. However, there are still quite a number of problems in radar operation. This is mainly due to the fact that most radars deployed for upgrading the Moscow-area antimissile defense system are not within the territory of Russia. This is a difficulty after the disintegration of the Soviet Union. As reported by the Pentagon, the large phased-array radar equipment deployed along the border region of Krasnoyarsk is being dismantled because the radar equipment seriously affects the LPAR construction project. The radar complex deployed at Mukachevo near the Ukraine-Hungary border is nearing completion. Construction of the radar has also been suspended, at present.

II. Air Defense

Moreover, the Soviets possess the world's largest strategic air defense system, which is continuously being expanded and modernized at present. There are several strategic air defense systems to cope with intermediate- and high-altitude aircraft. In addition, continuous research and improvement are underway to cope with the aircraft and cruise missiles flying at low altitudes.

This series of efforts include the following: upgrading the early-warning capability for the development of monitoring systems, development of more effective data processing systems, and developments of new model aircraft, air-to-air missiles, area-wide air defense missiles, as well as airborne early-warning and control systems.

As estimated by the Pentagon, the Soviets possess more than

9000 strategic area-wide air defense launch silos. Some of the silos have multiple-missile launch capability. In addition, the Soviets have deployed approximately 10,000 air defense radars, in addition to 2250 air defense interceptor aircraft for round-the-clock strategic defense.

As estimated by the annual publication Soviet Military Strength, in the entire Soviet territory there may be deployed overall SA-12A/Fencer missiles and SA-X-12B/Giant missiles. Both missiles are area-wide air defense missiles. The Fencer/Giant missiles began operating in 1992. Giant missiles have longer ranges; it was said that the missile can cope with aircraft in flight at a distance of 100km and tactical type ballistic missiles 40km distant. In addition, the Soviets are preparing to deploy the SA-10/SAM air defense system, which can intercept certain types of ballistic missiles with the SA-X-12B Giant interceptor missiles.

However, the Pentagon also took note of the loss by the Soviets of air defense facilities in the East European countries. Undoubtedly, this will weaken their air defense capabilities. The losses of air defense facilities in the Baltic countries and other republics of the former Soviet Union are also enormous. These losses seriously restrain the low-altitude coverage by early-warning radars, and reduce the effective reaction time of the interceptor aircraft. Such losses will form very large gaps in the early-warning coverage areas of the ballistic missiles. As pointed out in a Pentagon report, the political and economic pressures faced by the Russians are forcing them to slow down the deployment of strategic defense weapons and slightly reduce their air defense capabilities.

III. Cooperation Between the United States and Russia in SDI

In the 1972 anti-ballistic missile negotiations, after

several years of bargaining in talks on defense and space, U.S. Russian cooperation greatly heated up in January 1992. Russian president Yeltsin made a proposal on joint U.S.-Russian research on a global protection system against ballistic missiles.

After taking part in the United Nations Security Conference talks, Yeltsin told the press: "Up to the year 2000 and for the global democracies, we and the United States will become the most important cooperative partners on the global scale."

In a talk given by Yeltsin prior to the Security Conference: "In my view, this is the time that we should consider establishing a global protection system on the global scale. This global protection system can be modified on the basis of the U.S. Strategic Defense System to take advantage of the high-tech developed in the Russian defense complex." The foregoing is from a talk by Yeltsin two days before the U.N. Conference. This was the first time a proposal for cooperatively establishing a global protection system had been submitted.

Thereafter, Yeltsin further explained to the press that the global defense system should jointly research and develop with space as its basis. Therefore, submarines are not required to be included, because any forms of threat behavior can be suppressed from space.

With respect to the SDI Conference convened in September 1992, chief delegate George Mamedov of the Russian delegation referred to president Yeltsin's proposal on a global protection system: "It is very clear that ballistic missiles and weapons of mass destruction are expanding with growing danger."

Mamedov went on to say that the system should be joined and managed by multiple nations. The system should be open to all interested nations. However, since the United States and Russia

have vast technical and economic resources, these two nations should be the initiators.

On the Security Conference, Yeltsin said that this project is based on new situations after the end of the cold war. Russia should not only consider the U.S. and the West as partners, but also as allies. Yeltsin continued and said that, in order to free the world from the terrors of war, and especially to live in an atmosphere free of war threat and insecurity, we require such a system.

General commander-in-chief Shaposhnikov of the Commonwealth of Independent States said that all nations will benefit from the global missile protective system. Not only do we Russians require such a project, but the whole world requires such a project.

After the talks at the United Nations, Yeltsin met with U.S. President Bush at Camp David, talking with Bush on the proposal of strategic defense and a reduction in the strategic offensive weapons.

After meeting with Bush, Yeltsin said: "I think this is the time to consider building a global protective system covering the whole world. This system can improve on the foundation of the U.S. SDI in order to utilize the leading-edge technologies developed from the Russian defense complex." In response as to what kind of relationship between Yeltsin's proposed system and the U.S. SDI, he said: "The system I propose is more advanced than the SDI system. The former Soviet Union had a certain degree of alertness about SDI; actually, they were conducting a similar project, but still staying at the paper stage up to now."

Two weeks later, U.S. Secretary of State James Baker met with the Russian foreign minister Andrey Kozyrev, on a talk

regarding the reduction of strategic nuclear arms. They also discussed a series of problems, including the sharing of strategic defense technology and establishing an early-warning system in order to cope with enemy missiles.

After the talks by the foreign ministers of both countries, U.S. Secretary of State Baker said, at a press conference: "We agree to discuss the technical agreements for technical achievements in sharing the strategic defense field." Both foreign ministers also agreed to discuss the possibility of establishing an early-warning center for ballistic missiles. The center will provide information on missile early warnings to the participating nations.

Regarding the concept of establishing a joint early-warning center, the earliest proposal appeared in a letter by Mikhail Gorbachev, to the leaders of seven nations in July 1991. In his letter, Gorbachev proposed to establish a joint anti-missile early-warning system to prevent unauthorized missile launches or such missile launches with terrorist intent.

In October 1991, the Pentagon announced: "On the sharing of early-warning information, it is actually under study. This problem can begin with the signing of an agreement. The first agreement may be only limited to periods of crisis involving the U.S. and the Soviet Union, before the transition to signing of relatively permanent agreements. The early-warning radar network of the Soviet Union is not precise enough. They have a problem of serious false alarms possibly in real-time early-warning capability for missile launches by third-world countries."

After the press conference, a U.S. high official said that the early-warning center in its early stages is the formation of some practical defense cooperative form for the first time. This is one of the hallmarks of beginning a new era in the Camp David

Declaration. The American official continued and said that it is not clear where the early-warning center can be sited. However, we can have such a concept that radar, satellites, and other high-tech areas can be merged. At the earliest stage, this center will not affect the ABM Treaty signed in 1972.

The planned joint early-warning center will collect information on radar and satellites from participating nations joining the center into early warning information shared by all participating nations. The information may also be provided to those interested participating nations.

In June 1992, Russian-area specialist Rose Gottemoeller on state security policy spoke at the Rand Corporation. Under the joint early-warning concept, gigantic progress has now been made. In this respect, we began almost at zero. In other words, there was only very limited experience on the joint form. At present, the experience can be understood from the official language; in the past two months, the U.S. and the Soviet Union took a giant step forward on early warning. Gottemoeller said that the joint early-warning project will be established on the foundation of experience acquired by the center in reducing nuclear risks, and the system's capability will be expanded.

The reactions toward Yeltsin's proposals were complex. Some SDI supporters viewed them as yielding to Russia in regard to the ABM Treaty. Some other people considered this as the first step toward a multinational global defense. In the view of some SDI critics, Yeltsin's proposal is only a delaying tactic so that Russians want to maintain superiority in their offensive weapons. Actually, they are not really thinking of discussing the strategic defense problem. Some other people advocate that the United States should not have concrete joint actions with the Russians and should not provide monitoring information to the Russians.

A member of the Defense and Security Committee of the Kazakhstan Republic, Assan Nougmanov, said: "In this unstable world, with continuously shifting balance between North and South, the SDI is a very good concept."

In March 1992, Nougmanov made a speech at the Washington Press Club stating that Kazakhstan hoped to join the SDI to a certain extent.

After some meeting of minds on the problem of strategic defense achieved by George Bush and Yeltsin, six months later John Piotrowski, commander-in-chief of the Strategic Air Command, said: "In my view, we should cooperate with the Russians. Such cooperation is worthwhile. However, I think that cooperation should proceed on the principle that the Russians understand, and on the principle that the Russians can accept."

High Pentagon officials consistently maintain that the U.S.-Russian strategic defense project should not include the sharing of U.S. technologies. However, with new opportunities appearing upon the end of the cold war, the U.S. SDI (the United States Strategic Defense Initiative, that is, the Star Wars Planning Administration--original translator's note) began to assess thoroughly the SDI project. It is considered that the SDI investment can be reduced. However, in order to improve the efficiency of the GPALS (Global Protection Against Limited Attack System) and to study new concepts, but not seriously increasing the burden on U.S. industry, this is a viewpoint of researcher Gregory Canavan of the Los Alamos National Laboratory in New Mexico.

Caravan insisted that it is not necessary to license technologies to the Russians in order to promote the development of advance warning and interception between the U.S. and Russia and for further cooperation. The benefits to the U.S. are not

high to have joint defense between the U.S. and the republics of the former Soviet Union. It is difficult to prevent the Soviet Union from remodeling their intercontinental ballistic missiles and multi-warhead separately guided ballistic missiles launched from submarines. It is difficult to conduct effective inspection in order to have defense measures for eliminating surprise attacks, and it is difficult to reduce false alarms. In a paper, Canavan proposed the so-called joint stable defense plan.

In his paper, Canavan said: "Execution of all these norms (referring to several 'it is difficult...' mentioned above that are: prevention of MIRVing of intercontinental missiles and submarine-launched missiles, and reduction of false alarms with effective inspection--quote of the original translator) will reduce the necessity of space-based interceptors. Ground-based interceptors are to provide the necessary protection in preventing accidental or unauthorized launches. Of course, the defensive measures of eliminating surprise attacks are the basic point in carrying out effective protection."

Generally speaking, Canavan proposed three aspects of the joint plan: 1. defense against third-world threats by the United States and the republics of the former Soviet Union participating in the joint plan; 2. protection is provided against the accidental or unauthorized launches among the participating nations; and 3. defense against deliberate attacks.

In regional defenses, Canavan expressed the view that the most significant and prospective application field is to exchange information attained by the advanced sensors. "The Patriot missiles, improved versions, and THAAD (theater-area antimissile defense) system should obtain early-warning and ballistic information from satellites. This information can reduce radar search time in order to concentrate in tracking, thus upgrading the interception efficiency of the interceptors." Canavan

supplemented this statement to say that information exchange can proceed at the designed communications center, not required to have technical licensing. Flight information at the intermediate section can also be transferred.

In addition, Canavan said: "With respect to booster-stage defense, airborne lasers and ground-based lasers, neutral particle beams, and superhigh-speed ground-based interceptors, and conventional space-based interceptors can be jointly researched, without requiring special technical licensing." "Regarding the preboost stage, a large number of sensors can be jointly researched."

As predicted, U.S. SDI officials grabbed the opportunity, expecting to utilize Yeltsin's proposal to promote a modification of the ABM Treaty signed in 1972, to add some language to simplify experiments on strategic defense, based on the U.S. In April 1992, a major responsible person, Henry Cooper, of the U.S. SDIO, told the Senate Defense Appropriations Committee that both sides have encouraging dialogue. Cooper pointed out that when all Russian high military and governmental figures have visited the United States, they all talked about the problem of military cooperation. The U.S. side welcomes Russians taking part in simulated combat exercises and to talk with it in the field that both sides are interested in.

Cooper pointed out that if we can reach an agreement, then in the initial stage, this country can continue research on the foundation that accomplishments have already been gained. Thus much funds can be saved. Today, the risks confronted in experiments are quite different. "By utilizing matured technologies developed by the Russians, the entire SDI funds naturally will be considerably saved." "One dollar may only requires just several cents." Cooper figuratively said: "This is a new wind blowing toward us. The prospect of a new field is

opened with very excellent outlook."

In the period of the highest-level talks between Yeltsin and Bush in June 1992, U.S. assistant Secretary of State for international security policy Stephen Hadly said that the United States proposed four forms in joint strategic defense of the United States and Russia:

1. By setting up a joint early-warning center for ballistic missiles with the sharing of early-warning information about missile launches, this center will collect and show the early-warning information obtained to all participating nations (besides the United States and Russia, all other nations wishing to take part in the center).

2. The United States and Russia will report the scheduled space launch times, sharing detection information of launches by other nations.

3. Both nations will discuss technical exchanges, including the collection of technologies and hardware of the former Soviet Union.

4. A new concept of global defense against ballistic missiles is to be developed. As stated by the chief delegate, George Mamedov, of the Russian delegation, discussion is the legal basis of research cooperation, including the signing of new agreements and treaties.

As told by Hadly, "We consider that this is a very good opportunity for joint development of global defense systems between the United States and the republics of the former Soviet Union." "We propose to establish an early-warning center for ballistic missiles as early as possible so that technical sharing and cooperation will be carried out on the system structure of ballistic missiles."

As pointed out by Hadly, the concept of developing a global defense has proved to be a very difficult problem. In the most

recent two months, we discussed and assessed this problem, trying to make a fundamental outline of what is the global defense system of ballistic missiles. We believe that this fundamental outline is the target we are after. The direction we insist on is the target to be pursued in the missile defense treaty. This is our contribution to the missile defense treaty and also our contribution to the global defense system. The so-called global defense is identical to our initial understanding.

SDI supporters do not agree that the global defense system is separate from the framework outlined in the talks at the highest level. Regarding the problem of strategic offensive weapons, obvious success was attained in the talks at the highest levels, with the announcement on the reduction of long-range nuclear weapons.

Both leaders agree that the number of long-range nuclear weapons of their respective countries is to be reduced to less than 3500 in the year 2000. As the first step, the strategic nuclear warheads of the United States are limited at 8556; the number on the Russian side was limited at 6449.

Yeltsin said that the United States should reduce its submarine-launched ballistic missiles. This is the major nuclear force of the United States and should be reduced by more than half, from 3840 to 1750. Bush said: "The United States plans to generally maintain the number of strategic nuclear warheads to be about 13,000 several years later. Today, both Yeltsin and myself agreed to reduce the number of nuclear weapons in our respective nation to the range between 3000 and 3500. In this framework, each nation decides their respective armament structure."

After Bush and Yeltsin agreed to destroy part of their nuclear weapons, discussion on details was handed over to study by their respective assistants. The United States hoped to list

the study on the agreement on a time schedule. A State Department official said: "When discussing such an agreement, many problems should be clarified."

Although the State Department official did not clarify what special problems were meant, some other U.S. officials said that one of the problems is the following: the Russians hope to maintain some number of launch silos for SS-18 missiles. Based on the initial agreement, the launch silos should be destroyed simultaneously with missiles. The Russians advocated to retain the launch silos, in their view, it is relatively economical to launch single-warhead missiles in such launch silos retained.

In October 1992, the Russians raised more than 20 problems on how to destroy the nuclear weapons. A U.S. State Department official said that the problems raised by the Russians mostly involve natural exchange. These are problems of how to use formal language to carry out the agreement in order to execute the agreement reached in six months.

With regard to strategic defense, no agreements on any modifications to the ABM treaty signed in 1972 were reached. Only the concept of joint defense was raised.

After the talk at the highest level, Bush said: "Both President Yeltsin and myself agreed that the United States and Russia, their allies, and other nations expressing an interest will conduct studies on the concept of developing a global defense system against attacks by a limited number of missiles. We will form high-level specialist teams responsible to study and carry out this concept of what practical steps are to be taken, including sharing of early-warning information, and development of technologies and the feasibility of defense against ballistic missiles."

Bush said that the joint work team will search for a legal

framework specifying the cooperation, including signing of a new treaty and agreements, as well as modifying the current treaty and agreement in order to carry out the establishment of a joint global protection system.

There are three subteams under the joint work team. One subteam studies the concept of joint global defense. The second subteam discusses the problem of technical cooperation. The third subteam studies the problems of preventing missile technology and large-scale destructive weapons from expanding.

When the joint work team proceeded to carry out the Bush-Yeltsin agreement, the United States hoped that the joint work team will study how to eliminate such barriers laid out in the first stage strategic defense facilities by the United States, including some ground-based antimissile bases, application of early-warning and other sensor systems to provide interception information to the ground-based interceptors.

Bush appointed Dennis Ross as the chief assistant to Secretary of State James Baker. A new high-level negotiation delegation was led by Ross, to be responsible for the negotiation of joint missile defense. The chief delegate of the Russian delegation was George Mamedov, deputy minister of the Russian foreign ministry.

On September 1992, Mamedov spoke at an SDI conference convened in Washington, D.C.: "Talks by two previous work teams were concluded in attaining quite good progress; however, undoubtedly some aspects of disagreement still exists. If we are to attain success, we should recognize such aspects of disagreement." Mamedov continued: "The joint team discussed very practical problems that should be seriously studied and solved in the near term, including the problems of information-sharing and technology-sharing, also including the problem of sharing our

antimissile research, and the attained research accomplishments. No one is willing to put his foot into a quagmire in discussing this problem."

However, Mamedov still cautiously maintained that this problem should be solved step-by-step, steadily. He said: "Any ambitious technology scheme and concept should not infringe on our viewpoint of fundamental users of the system (indicating the future joint antimissile system), not to cast a shadow over our viewpoint." "We should avoid being distracted by certain temptations to make fast adjustments to the system. This will be a legal or structural type language. Of course, such language in terms has not been prescribed at present and has not been outlined. Such adjustment scheme may appear from time to time to disturb us later on."

Mamedov pointed out that this is a new era in the relationships between Soviets and Americans and between Russia and the United States. In this new era, we establish a cooperative policy in the process of carrying out strategic stability and security. With the establishment of global protection in the new era, we will set up a cooperative relationship. Let Russia and the United States forget the past and proceed along the signed treaty."

In the dark days of the U.S. presidential campaign in 1992, Ross followed Secretary of State Baker to enter the White House to work on the campaign team. Until the results of the presidential election, the main tasks of Ross were on the presidential campaign. After the campaign results appeared, the Russians expected action by the new United States government.

After talks at the highest level, Cooper said: "We request rapid progress from the joint work team; we hoped that the media report this viewpoint with all forms." Cooper continued: "We

should study on a priority basis an agreement on establishing multiple ground-based system locations. If agreement is not reached by year's end, the only location of deploying the ground-based system in 1979 was the Grand Forks base." Cooper pointed out that if agreement was reached on establishing multiple bases by the end of the year, the taxpayer's burden can be relieved by two billion U.S. dollars, eventually."

According to Cooper's viewpoint, the second problem that should be considered in priority is to study the modification on the vague items on using sensors in the ABM Treaty so that the United States can improve the performance of its early warning system and can be able to provide early warning information for ground-based interception in the United States. Other problems include the building of new radars in the East and West Coasts of the United States, or the development of ground-based monitoring and tracking systems. Cooper proposed three schemes of clarification to the ABM treaty.

The three major points to be considered that Cooper raised are as follows: cancellation of such unclarified items on preventing the United States from developing, experimenting on, and deploying space systems and regional missile defense systems. In Cooper's view, although the highest-level talks were unable to seriously consider this problem, yet we are progressing on these problems needing urgent solutions. The joint communique by Bush and Yeltsin will give us a practical push, pushing us to take joint action on establishing the global protection system. Let the Russians conduct propaganda of their military and space war, Cooper pointed out that Russian propaganda will not exceed the scope of considering to use their SS-18 missiles to launch the Brilliant Pebbles missiles of the United States. If the SS-18 missiles follow the development route of the SS-9 missiles, they may become a space launcher, and may have the concept of launch at some time the Brilliant Pebbles missiles.

As pointed out by Cooper, we can imagine that the joint command center will be established at a certain time in the future. This command center will apply the joint space system, or be combined with some ground systems in Russia. Or, it will combine with such U.S.-based systems like the Brilliant Pebbles missiles to protect Moscow against launches by some other nations outside the former Soviet Union. Or, the combined system can possibly cope with the launches in some republics of the former Soviet Union. Although these concepts are somewhat dramatic, however, there were not many other events occurring in the past two years even more dramatic?"

Some other people have the view that Yeltsin actually expects the coming of a global defense system. As reported from the U.S. Congress, Yeltsin expected that a global defense system is from a certain news medium, because he does not have money to proceed with a joint SDI project. As stated by Majif P'eng, who took part in the Arms Control talks in Washington, D.C., the Russians will reiterate within the next few weeks their support for the ABM Treaty. The current ABM Treaty will be extended to a period of time in the future.

As related by P'eng, Yeltsin said that the most important matter is the joint control of the system. The United States did not intend to provide such a system, or the key SDI technologies, and so we can buy some hardware, such as Topaz and Hall boosters. However, ambassador Cooper said that the door is not open in the problem of joint operation. There are still wide divergences about the viewpoints of both sides. Russia consistently opposes deploying any weapons in space.

At a press conference held in the Rose Garden, Yeltsin said that the Russians consider the agreement as a practical step. Therefore, we are getting rid of the unlucky universal parity that each nation is working on their own efforts to stand on a

line. In the previous unlucky universal parity, one-half of the Russian population lived below the poverty line. We are unable to accept this fact, therefore we need a guarantee at the minimum level to cope with any threat to our security from any part of the world. We understand that we should not fight against each other.

In September of the past year, a talk was held in Geneva by the United States and Soviet delegations. The possibility of establishing a joint early warning system was increased. At the same time, the responsible person, Henry Cooper, for the US SDIO, verified that the Russians had agreed to modify the ABM Treaty signed in 1972. They agree to deploy the advanced sensor satellites. Cooper said: "You are unable to refuse the sharing of information, unable to deny that some advanced sensor systems can simultaneously or successively single-handedly discover interceptors on both sides."

According to the viewpoint of a certain authoritative figure familiar with the arms control problem in Washington, D.C., the Pentagon is inclined to provide the Russians with real-time early-warning information in exchange for Russian compromise on modifying the ABM Treaty of 1972 in agreeing with the deployment of a global protection system to cope with limited attack.

In December 1991, Pentagon spokesman Pete Williams said that any joint antimissile system should not include exchange of hardware or technology for missile defense. He continued: "What we talked about is the sharing of early warning Generally, there were only such discussions on the route that may be adopted by both sides in promoting the joint defense."

An American specialist (of the independent National Security Archives), Jeffrey Richelson, pointed out that the joint U.S.-Russia anticrisis center may use information acquired by Pave

Paws ground radar, defense support satellites, or the next-generation early-warning system. Another scheme is to apply the presently available DSP satellite, which is retained based on suggestions by the Congress. Such satellite can be launched into a low-dip-angle earth orbit in order to assist the Russians in early warnings. However, some analysts consider that the DSP satellite can be flown only in polar orbit; the satellite is unable to fly in other orbits. After the highest-level talks, Cooper said that he personally was despairing that progress has not been attained from the foundation of the highest-level talks.... He hoped that an agreement may be reached on establishing a joint defense system of multiple sites. Cooper pointed out unless modifications on the ABM Treaty signed late in 1972 can be reached, the Pentagon will probably insist on the concept of building a limited ABM system in the Grand Forks area, not to study the ABM system excluding the area. However, Cooper pointed out that he could not help feeling sorry about the failure then, two years later, when he was the chief U.S. delegate in participating at the defense and space talks.... He considered that the construction of a joint defense system of multiple sites is an important step forward. He believed that agreement will be quickly reached.

However, the U.S. chief delegate (taking part in the Arms Control Conference) Spurgeon Keeny said: "Both sides agree to study this problem later, but it is not possible to reach an agreement without any modifications to the ABM Treaty. This is very important because one of the purposes for the U.S. taking part in the highest-level talks is to try to persuade the Russians to agree to modifying the ABM Treaty. This treaty does not allow the development and deployment of a limited-protection system."

Keeny pointed out that, since no agreement was reached in the highest-level talks, the future of SDI is very unpredictable

because under the ABM Treaty signed by the end of 1972 we are unable to deploy a limited-protection system, and even unable to develop a complete limited-protection system. Keeny advocated that we should proceed whatever the results of the highest-level talks to sign some kind of agreement to cancel the 1972 ABM Treaty in order to promote the development of strategic defense. In a meeting in the Congress studying the SDI budget, all present realized that SDI's development should be continuously promoted. The number passed in the budget expands the problem; it is very obvious that SDI is one of the Defense budget projects with more significance.

Congressional supporters of SDI quickly pointed out the mistake of the Bush administration and scolded the Bush administration for having approved the 1972 ABM Treaty at the highest-level talks.

Senator Malcolm Wallop, Rep.-Wyoming, said that the administration made a wrong concession on the problem of the 1972 ABM Treaty, creating confusion in the Congress. The mistaken concession of the administration told the Congress that the administration's promise is not serious regarding the promoting of the SDI project from research stage to deployment stage. Under the situation that the administration approved the 1972 ABM Treaty, the concept of increasing SDI investment becomes more and more difficult. Wallop continued and said that the U.S. should be pulled out of this practically cooled-down treaty.... For the 1972 ABM Treaty, it will not hold up, whether logically or legally.

The main SDI supporter, Rep. Jon Kyl, R.-Ariz., (in the Congress) said that the Bush administration disregarded the Congress's wish to modify the 1972 ABM Treaty and approved the treaty. Thus, the initiative was lost. Not long after the highest-level talks, Kyl said, at a ball feast held by the

International Association of Testing and Assessment, that the administration should question the Russians as to what is their attempts in the global defense with the United States? Kyl was worried that the Russians were playing nonsense; they just played with some frightening language. Kyl sharply pointed out: "If you Russians are serious in dealing with the global defense, then you should confess and should candidly confess such a fact that even the 1972 ABM Treaty is not a patchwork treaty, and at least it should be modified."

Kyl pointed out that in the entire text of the communique for the highest level talks between Bush and Yeltsin, the term "treaty" was not mentioned even once. "If we intend to promote the concept of global defense, this concept should include space-based components. This is a must. If we talk about developing a joint early warning system of some kind, if this joint early warning system is not part of our scheme, the value of the system is very limited. What's the use for us to set up such an early-warning system." "We should immediately make a decision in the Congress about whether or not to pour all our investments into a Grand Forks limited-defense system, which has been abandoned."

Kyl went on to say: "The SDI project is in a state of confusion. This is not Cooper's mistake, but mostly the mistakes caused by SDI opponents."

In October 1992, in a letter written by Vladimir Nazarenko to Rossiyskiye Vesti at the International Research Center for Military Affairs and Politics of the Russian Institute for the Study of the United States, it was stated "that Russia should join with the United States in developing global strategic defense system. Such a system is very effective in coping with limited missile attacks; the system will prevent an overall nuclear catastrophe."

Nazarenko said that a joint United States-Russia global defense system will increase the probability of nonproliferation of nuclear forces. The system can monitor such nations already possessing or nearly possessing nuclear arms. Nazarenko went on to say that, in this situation, the 1972 ABM Treaty has already lost its reason for existing today, since fundamental changes have occurred in the relationships between Russia and the United States.

IV. Other Areas of Discussion About the U.S.-Russia Strategic Defense

The discussions in the high-level talks on the joint early-warning system and global protection system cast a shadow on the ongoing Geneva negotiations on strategic defense regarded the 1972 ABM Treaty. The new discussion in the high-level talks neglected the other two kinds of negotiations, so that delegates in the two other negotiations did not know what to do, only sitting down to wait for the results of the high-level talks.

As the representative of the U.S. Strategic and Space Defense Command, and also as a consultant taking part in the treaty negotiations, Matthew Nichols said in June 1972: "Everybody sits in front of the negotiation table, waiting for the results of the high-level talks." Nichols pointed out that during the time without any results on the defense and space talks, the high-level talks progressed so rapidly that the negotiation delegates were confused.

In addition to meeting once every six months as specified in the Standing Consultative Conference to resolve the problems of execution, disparity, and flexibility of the ABM Treaty, no other talks were convened in 1991. This is because the Soviet Union was in a state of flux so that no meetings were convened until the spring of the next year.

There was another problem: after the Soviet Union disintegrated, the problem of who represents the former Soviet Union was raised. Of course, both sides agree that the 1992 [sic] ABM Treaty is still in force, but the problem of who inherited the former Soviet Union is still unresolved.

1. ABM Treaty

As specified in the 1972 ABM Treaty, the antimissile system includes the development, experimentation, and deployment of interceptors, launchers, and sensors. As initially specified in the treaty, each side (the United States and the Soviet Union) can deploy only 100 interceptors in one of the two following areas: one is an offensive missile base and the second is the capital. Later, revisions were introduced to change 100 interceptors into 100 missiles. The United States chose to protect the Minuteman Missile Base in North Dakota; the Soviet Union chose Moscow.

Both the Soviet Union and the United States established antiballistic missile systems in the seventies. In the mid-seventies, since the U.S. system was too simple and its effectiveness was too low, the system was discarded. The Soviet Union maintained and continuously upgraded its antiballistic missile system deployed around Moscow.

The treaty forbids deployment of other antimissile systems, but research and development of the conceptual design of a new system are allowed, including experiments. Experiments of other than ABM system components are also allowed. The space experiments and data collection research of SDI proceeded under this provision. According to the United States policy to be carried out, the SDI experimental scheme can only stay within the framework specified by the ABM Treaty.

In previous years, the language that the United States

Congress approved for the SDI was that SDI experiments are conducted within the narrow specified framework of the ABM Treaty in order to proceed with SDI.

As pointed out by a classified research report, if the treaty is interpreted loosely, the SDI research scheme may save 3 billion U.S. dollars and two years' time. Pentagon officials also said that actual verification data can be used to persuade the president, the Congress, the military, the general public, and the Soviets that SDI can and should be continually researched. "We require experimentation on the exhaust frame of rockets; this is very easily understood by generals or congressmen without any technical background." This is an explanation of a high Pentagon official.

Rep. Ron Dellums, D-Calif., chairman of the Military Affairs Committee of the Congress, also agreed: "The entire problem is a problem dealing with experimental violations of the Treaty is what standing you are on. This is a discussion that is just a waste of time. The fundamental problem is whether you will stand on any point of the bottom line to abide by the treaty. Dellums said that the Congress decided to support the narrow interpretation of the ABM Treaty, and at the same time also supported that the SDI investment exceeds the logical limitation of the ABM Treaty. If one supports both viewpoints, one naturally stands on the side of Congress, then politics is often not logical.

2. Connection between SDI and START

In 1989, the Soviets announced that they were no longer opposed to the former linkage between the ABM Treaty and START; however, for the viewpoint of maintaining the informal connection, if the United States does not violate the narrow interpretation of the ABM Treaty, the Soviets will not block the signing of START.

When beginning the space arms talks in 1985, the Soviets wished to prohibit all experiments with a certain purpose outside laboratories. This suggestion was decisively rejected by Reagan. Later, in 1987, the Soviets advanced a narrower interpretation than the foregoing narrow interpretation. This suggestion was clearly linked with START.

In September 1989, the Soviets toned down their tune; however, they still pointed out that any behavior exceeding the ABM Treaty will lead to the Soviet Union's refusal to sign START. This change meant that the Soviets accepted the narrow interpretation of the ABM Treaty adopted by the United States. Pentagon deputy secretary Frank Gaffney insisted: "Although the Soviets made propaganda on giving up the linkage between the two, yet they still decided not to allow the United States to deploy the SDI system, but only allowed the experiments."

The Soviets' stand was as follows: since the United States did not prevent the signing of the 1972 ABM Treaty, the Soviet Union will not prevent the signing of START. This assurance added a condition that the narrow interpretation by the Soviets of the ABM Treaty should be satisfied; however, development of the space-based antimissile system is still blocked. Before then, the Soviet Union steadily insisted not to modify the ABM Treaty as a precondition of reaching any strategic arms reduction treaty. Of course, American officials refused such linkage, proposing that the Soviets not consider SDI too seriously.

In a joint communique of the U.S.-Soviet foreign ministers' meeting in Wyoming, both Soviet foreign minister Shevardnardze and U.S. Secretary of State Baker said that negotiation delegates will discuss the ways of how to assure predictability of developing the strategic defense.

However, the problem of vagueness is as follows: whether both sides will reach a compromise on the linkage between giving

up defense and the START Treaty. Shevardnadze said that the Soviet concession has decisive significance for the negotiations in attaining real progress.

With respect to the U.S. specialists, an illustration shows that both sides agree to allow the SDI components to proceed with some space-based experiments. Although the range of the experiments and the reality still raise serious debate within the United States, Soviet officials had reduced their suspicions in differing degrees as regards orbital experiments by U.S. specialists based on the ABM Treaty. Shevardnadze's consultant, Vitaly Churkin said: "In our view, on the foundation of space research, some experiments conducted in space should be allowed. However, experiments on space-based antimissile systems and component prototypes and actual components should be forbidden."

To clarify the distinction between experiments based on research, and experiments on prototypes, in 1987 the Soviets again suggested that agreement could be reached on items that space experiments are allowed, and other provisions stating that space experiments are not allowed. President Reagan refused this suggestion, giving as his reason the fact that the restrictions on experiments are more strict than the narrow interpretation of the ABM Treaty, no other provisions are required.

Reagan, and his successor, Bush, inclined to such a resolution of the matter. In other words, in some space region of design, experiments on actual prototypes are allowed, but the Soviets rejected the concept on the experimental region, acknowledging that this concept is only the second edition of loose interpretation of the ABM Treaty. American specialists suggested another approach at resolution, that is, to make relatively precise limitations on the threshold value limit on system performance. The Soviets were interested in such limitations. They wished to specify such limitations to the

extent that the U.S. was unable to accept.

At the beginning of the defense and space negotiations, Cooper pointed out that the main concern of the Soviets was space. They raised the suggestion of prohibiting the space offensive weaponry. Their offense space weaponry indicates the space-based weapons that can attack any targets in space or in the atmosphere. This category of space-based weapons includes antisatellite and strategic defense weapons. In Cooper's view, he believed that the Soviets also undoubtedly want to change some concepts in the ABM Treaty, but they want to expand the ground-based system, but they still want to erect barriers to development for the space-based systems.

In November 1991, the U.S. proposed to modify the present ABM Treaty in order to be able to develop a limited strategic defense. The American proposal specified the upper limit on the number of antimissile interceptors deployed. It is specified to distribute these interceptors in a limited number of points with regional distribution. At each point, a limited number of ground-based interceptors can be deployed. The limitation on development and experiments by the treaty is to be relaxed. In addition, the Treaty is limited to a limited number of years. This was a counterproposal to the Soviet proposal.

Dellums, chairman of the Armed Services Committee of the U.S. Congress, analyzed that both the U.S. and the Soviet Union wanted to modify the ABM Treaty, but they have different purposes. The motive of such a manner of dealing with the ABM Treaty by the republics of the former Soviet Union is not that they are particularly concerned about the Scud or long-range missiles, but the imaginary regional threat. In May 1992, Dellums said at a committee hearing: "The motive that we request in modifying the ABM Treaty is the concern that our long-range missiles are not to be attacked. The Russians deal with the ABM

Treaty from an entirely different angle. I am alarmed that both sides are unable to reach a consensus on modifying the ABM Treaty."

The Pentagon deputy secretary Hadly (responsible for international security policy) said that the U.S. strategy is to develop a strategic defense concept and to carry it out so that our allies and friends can accept. Then the concept is to deliver to the Russians and the republics of the former Soviet Union to seek their concurrence. I think that if we raise this concept as a joint global system, then the barrier of the ABM Treaty will be smoothly resolved on the problem of establishing a defense system. The first step is to reach a certain concurrence or understanding on the global defense."

Chairman Kenny of the Armed Services Committee of the U.S. Congress said at a subcommittee meeting that he did not consider that the Russians will change their tough stand in opposition to cancel or thoroughly modify the 1972 ABM Treaty in order to allow the development or deployment of a limited ABM defense system, especially the development of space-based interceptors.

3. Defense and Space Talks

In defense and space talks at Geneva, the U.S. target was changed from establishing a joint defense system into a relatively stable balance between offensive and defensive forces. Hadly said: "The important point is that the United States still seeks a scheme for developing and deploying advanced defense. If necessary, the United States can proceed singlehandedly when all preparations are ready."

A high U.S. administration official, very familiar with the defense and space talks, said at a press conference in Washington, D.C., in 1990: "Why are we meeting here? It is to carry out all advocates by U.S. on space talks." "What do we

want to do at these space talks? What we are intending to do is to formally propose a transition from the talks on cooperation to talks on intimidation. The intimidation is more appropriate than the present cooperation talks. This is the key to the defense and space talks."

This U.S. official pointed out that one of the problems mainly concerning the Soviets is as follows: whether the U.S. proposal means that alarming progress has been attained in U.S. technology and is urgently intended for development. "Obviously, if you hope to maintain cooperation and stable transition, then you will be alarmed that the main topic that you hope is unable to be carried out."

At a Pentagon press conference, Cooper said: "The problem eventually concerning the Russians is the problem of space deployment of a defensive system." "Although if we have the capability of deploying a defensive system in space, we can believe that eventually the Russians will return to the negotiation table under an agenda that we proposed."

In October 1991, the U.S. changed its stand on the defense and space talks. The Americans told the Soviets that the U.S. is will to discuss problems of scale and timing of strategic defense.

A White House official said: "Now the United States is preparing to discuss the limitation problems of scale and timing of defense deployment. This is consistent with the president's pursuing of deployment of a defense system capable of providing global protection against a limited attack." Later, the White House press secretary Marlin Fitzwater further clarified: "This change in the U.S. stand has made it possible to have an agreement on deploying of a ballistic missile defense in order to cope with the accidental or unauthorized launch or a launch by a

Third World country."

The change of the U.S. stand on the talk is a change from not willing to talk of any restrictions to a willingness to talk of restrictions. One of the reasons is that the U.S. has proceeded a step on the GPLAS configuration. At the same time, the Russians also indicate that they are willing to discuss any U.S. proposals on nonnuclear ABM systems.

When announcing the change in the U.S. stand, Fitzwater explained further: "As we are seeking to reach an agreement at Geneva, the basic attitude of the Congress is to support our efforts so that the funds allocated for SDI are maintained on the level of deploying a ballistic missile defense system at the largest number of possible sites."

4. Draft of Defense and Space Treaty

In the draft defense and space treaty proposed by the United States, it is required that both sides abide by the treaty. Except that both sides decide to deploy a defensive system, the treaty allows both sides sufficient authority to develop and test the advanced space based strategic defense system and components meeting the requirements of the ABM Treaty.

The procedures of deploying this defense in the strategic defense system should be set up under the allowable conditions exceeding the 1972 treaty. The procedures should include the compilation of memoranda, as well as the special inspection approach that should be made necessary in an attitude of cooperation adopted by both sides so that both sides can be more reliable in the defense problem. Within six months after announcing the memorandum, if there is no opposing opinion, both sides can begin to deploy the defense system. As desired by the Americans, the memorandum is provided three years in advance

before deploying of a large scale strategic defensive system. During the period of deployment preparations, authoritative personnel will discuss ways of making the joint transition from intimidation mainly by offense to intimidation mainly by defense.

In the U.S. draft of the treaty, any limitations on space-based interceptors by the ABM Treaty should be lifted. It is acknowledged that no distinction can be made between antiballistic missile sensors and other sensors not oriented to antiballistic missiles. Moreover, the treaty draft includes a proposal on the number of SDI test satellites to be limited.

The limitation on the number of satellites is the problem most concerning the Soviet Union. In other words, the United States can utilize the vast expanse space testing as a cover to cover its secret deployment of space-based SDI. In the American proposal, both sides should agree such a plan: to limit the number of satellites for antiballistic missile experiments to be below the number for probable deployment.

In the American proposal, the number of test satellites is to be kept to fewer than 15. In addition, in the American view, each side should publicly explain its test satellites; the tests should be announced in advance. As stated by U.S. government officials, the United States will not discuss the problems in the space experiments in order to limit the establishment of space components.

In October 1989, as reported in the Los Angeles Times, the Soviets secretly proposed that they can dismantle their Moscow-area ABM system if the United States agrees to accept the narrow interpretation of the 1972 ABM Treaty.

5. Defining the Problem of Monitor Reliability

Moreover, the United States suggested six methods of

monitoring or prediction, and this suggestion is desired by the United States to be included in the Treaty Annex, as follows: Once a year, information on technical norms in SDI research by the United States and the Soviet Union is exchanged. Briefly and periodically the other party is notified of the respective design schemes. Specialist meetings are held periodically. Exchange visits are conducted between the research center and the design center of strategic defense. Space antiballistic missile tests are reported. Strategic defense tests are observed within the territories of both countries.

As related by American officials, exchange visits and periodic reporting, as well as information exchanges, are incapable of lifting the cover on research details on each side. However, the other side's planning, progress, and the gap between plan execution can be generally understood.

Previously, the Soviets consistently rejected the concept of information and visit exchanges on the strategic defense center. However, the present Soviet standing has some extent of softening. A government official said that both sides can reach a consistent agreement on the data exchange, mutual reporting, and test observations if not dealing with all details. "Both sides have some reservations on how to handle these measures and how to solve these problems. Therefore, I cannot say that we completely agree on these problems. I only can say that there is much room for agreement."

On the expected memorandum, the purpose is to establish confidence on both sides. As suggested in the memorandum, both sides are to provide a window for joint efforts on establishing strategic defense in the study of strategic defense. Thus, the risks of unexpected events in technology can be reduced. Hadly said: "The purpose of making the suggestion of inspection is that both sides can assure in the problem of strategic defense

research. The Soviets are modernizing the deployed ABM system." "By increasing clarity on the activities of both sides, we expect to build a trust in each other. Whatever side does not seek superiority. Instead, both sides are to have more confidence for a more stable strategic framework."

In April 1990, an unnamed American official told a Washington Times reporter that the United States suggested that one year testing of the same SDI project is to be carried out by the Americans and the Soviets in order to build confidence. This is worth trying before the Soviets accept the proposal. This is the foundation of cooperation between both sides.

In the American's suggestions, both sides should establish a trusted inspection and monitoring on special research projects with data exchange, exchange of visits between specialists, reporting to each other extensively, exchange of visits to laboratories, and observations of tests.

6. Problems of Visiting Laboratories

To express how to establish a trustworthy inspection monitoring, the United States invited Soviet delegations to visit two SDI research sites. The United States officials quickly point out that no conditions are attached to visiting the corresponding Soviet organizations in the visits made by Soviet specialists on the alpha chemical laser device at TRW, and the neutral-particle beam research facility at the Los Alamos National Laboratory. The American official said: "Basically, visits to laboratories have been carried out; this is the window of research activities of both sides."

In December 1989, a Soviet delegation composed of ten specialists visited the two above-mentioned key SDI research centers. Leading the Soviet delegation, ambassador Yuri Nazarkin was the chief Soviet delegate in the strategic arms talks. There

were eight specialists in the delegation, including specialists on chemical laser devices and neutral particle beams. There was a foreign ministry official. They were G. I. Batskikh, V. G. Bezborodov, V. A. Glukhikh, B. I. Katorgin, A. A. Max, O. P. Sidorov, V. G. Sidorovich, V. A. Teplyakov, and S. D. Chuvakhin.

Their American colleagues were led by David Smith. Later, Smith led the American delegation on space arms talks. Other members included deputy chief delegate William Courtney; brigadier general Art Johnson, delegate of the U.S. Joint Chiefs of Staff; colonel Tom Meyer, director of directed-energy office of the SDIO; O'Dean Judd, chief scientist of SDIO; Doyle Evans, delegate from the department of energy; William Furniss, Peppi Debiaso, and James Eubanks, three Pentagon delegates; and Dennis McDowell, delegate from the Arms Control and Disarmament Agency; and James Meditz, delegate from the State Department.

The delegates visited the alpha chemical laser facility in the San Juan Capistrano area in California, and the neutral-particle beam test center at the Los Alamos National Laboratory. The Soviets listened to briefs at the laboratory on the development scheme of neutral-particle beams in the United States. The American officials said that these are two major research projects of SDI, representing the technical leading edge in the United States. They were willing to listen to questions raised by their guests.

Upon arrival at the airport in California, the Soviet delegation chief Nazarkin said: "We consider this visit to American laboratories as a step in building mutual trust." While visiting the Los Alamos laboratory, Nazarkin was asked regarding the research level of the alpha chemical laser as compared to the research level of chemical lasers in the Soviet Union. He praised that the alpha laser is quite good. However, he added that he is not very expert in physics because he is a political

scientist, unable to talk about research details. Nazarkin said humorously: "I want to visit Hollywood.... I wish that Star Wars only remain in film production studios in Hollywood."

The visit was maintained at a low level because the Geneva space arms talk was considered to be intensified. The Americans told their guests that no other conditions are attached to this visit, not attempting to suggest anything that the guests are not willing to do.

Based on the consistent stand of the U.S., this is to develop and deploy a limited antiballistic missile defense system. With the pretext of the ABM treaty, the Soviet Union opposed such deployment. This high U.S. official talked vaguely. In the (original) translator's opinion, this is to talk about concrete procedures of development and deployment to cope with intimidation through intimidation not to vainly talk about cooperation. ([Journal] translator's note).

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